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Title: **JP11240970A2: POROUS MEMBRANE AND SEPARATOR USING THE SAME A USED FOR BATTERY**

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Country: JP Japan  
Kind: A

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**NITTO DENKO CORP**

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Issued/Filed Dates:

**Sept. 7, 1999 / Feb. 24, 1998**

Application Number:

**JP1998000042515**

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**C08J 9/00; C08K 5/20; H01M 2/16; C08L 23/02;**

Priority Number(s):

**Feb. 24, 1998 JP1998199842515**

Abstract:



**Problem to be solved:** To provide a porous membrane having a low shutdown(SD)-initiating temperature and a large SD rate and useful as a separator for a battery.

**Solution:** This porous membrane is formed from a mixture of a polyolefin with a substance which has a lower melting point than that of the polyolefin and is incompatible with the polyolefin. The substance comprises at least one of a resin having a viscosity-average mol.wt. of 100-10,000 and an aliphatic compound having 9-22 carbon atoms in the aliphatic chain. When the ion transmission-interrupting temperature of the porous membrane is set to a range of 105-130°C, and when the electric resistance of the porous membrane is measured on the basis of JIS C 2313, the electric resistance value of the porous membrane after a thermal treatment at 130°C for 0.6 sec is set to  $\geq 20$  times an electric resistance before the treatment. Polypropylene and highly dense polyethylene wax may be used as the polyolefin and the substance, respectively.

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► See a clear and precise summary of the whole patent, in understandable terms.

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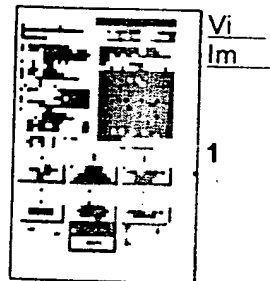
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**CHEMABS 131(14)186015K CHEMABS 131(14)186015K DERABS C1999-555112 DERABS C1999-555112**

Foreign References

No patents reference this one



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states:(71) Applicant: **NITTO DENKO CORP**(72) Inventor: **NISHIYAMA SOJI  
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(74) Representative:

**(54) POROUS MEMBRANE  
AND SEPARATOR USING  
THE SAME AND USED FOR  
BATTERY**

(57) Abstract:

**PROBLEM TO BE SOLVED:** To provide a porous membrane having a low shutdown(SD)-initiating temperature and a large SD rate and useful as a separator for a battery.

**SOLUTION:** This porous membrane is formed from a mixture of a polyolefin with a substance which has a lower melting point than that of the polyolefin and is incompatible with the polyolefin. The substance comprises at least one of a resin having a viscosity-average mol.wt. of 100-10,000 and an aliphatic compound having 9-22 carbon atoms in the aliphatic chain. When the ion transmission-interrupting temperature of the porous membrane is set to a range of 105-130°C, and when the electric resistance of the porous membrane is measured on the basis of JIS C 2313, the electric resistance value of the porous membrane after a thermal treatment at 130°C for 0.6 sec is set to

≥20 times an electric resistance before the treatment. Polypropylene and highly dense polyethylene wax may be used as the polyolefin and the substance, respectively.

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